

NOTES

CALIFORNIA QUAIL LAYS EGG IN WILD TURKEY NEST

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Intraspecific nest parasitism has evolved several times in the order Galliformes and has been documented for at least 32 species (Geffen and Yom-Tov 2001, Yom-Tov 2001). Reports of interspecific nest parasitism in this order are much less common than for egg dumping among conspecifics (Lyon and Eadie 1991). Below we describe an instance of egg laying by California Quail (*Callipepla californica*) in the nest of a Wild Turkey (*Meleagris gallopavo*). This record represents the first report of nest parasitism between these two species.

We observed the following interaction at the Hastings Natural History Reservation in Carmel Valley, Monterey County, California, during a study of the mating system of Wild Turkeys. On 22 April 2002, we located a Wild Turkey nest by tracking a radio-tagged female to a nest in a wooded ravine of coast live oak (*Quercus agrifolia*), California buckeye (*Aesculus californica*), and California bay-aural (*Umbellularia californica*) (Kalcounis-Rüppel and Millar 2002). We visited the nest at 10:30 on 23 April to count the eggs when the turkey hen was off the nest. A male and female California Quail flushed from the nest as we approached. The nest appeared typical of an early-season turkey nest in this population: it was a shallow depression in the leaf litter at the base of a tree, partially screened by shrubby ground cover. In the nest we found one quail egg situated on top of seven turkey eggs. On 25 April, the nest contained 10 turkey eggs; we found no sign of the quail egg, although we did not shift the turkey eggs to check the bottom of the nest thoroughly. At least eight turkey eggs hatched on 22 May, two undeveloped turkey eggs failed to hatch, and a thorough search of the nest site revealed no trace of the quail egg. This parasitic quail egg was the only one found in about 45 turkey nests examined during the course of the study. California Quail and Mountain Quail (*Oreortyx pictus*) are both common residents at the Hastings Natural History Reservation (Davis et al. 1980); California Quail in particular overlap considerably with turkeys in this location (pers. obs.).

We can not entirely rule out the possibility that the quail egg may have hatched. However, it seems unlikely that it could have been properly incubated. Turkey eggs are almost twice the width of quail eggs (Bent 1932), suggesting that once the eggs were turned, the much smaller quail egg might have fallen below the turkey eggs and would not have properly contacted the brood patch of the turkey hen. We do not know the cause of the disappearance of the quail egg, but we hypothesize that it was destroyed by the incubating turkey hen, or was the victim of a nest predator that could not consume the much larger turkey eggs.

Although egg dumping by California Quail in Wild Turkey nests has not been reported previously, this behavior is not entirely unexpected. California Quail are reported to practice intraspecific nest parasitism (i.e., "dump nests," Glading 1938), and even lay eggs indiscriminately on the ground while searching for nest sites (Tyler 1913). Their eggs have also been found in the nests of the Mountain Quail (Grinnell et al. 1918), Spotted Towhee (*Pipilo maculatus*, Bleitz 1956), and White-crowned Sparrow (*Zonotrichia leucophrys*, Bent 1932). Turkey nests are vulnerable to conspecific egg dumping (Bailey and Rinell 1967, Krakauer unpubl. data) and have also been parasitized by Ring-necked Pheasant (*Phasianus colchicus*, Schmutz 1988). Modern interactions between turkeys and quail in California began within the past 125 years and are the result of an intensive management program aimed at

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establishing the Wild Turkey throughout the state (Wunz 1992). Historically, however, this observation may not represent a novel interaction, since fossil evidence suggests that California Quail may have been sympatric with a species of turkey in the late Pleistocene (Miller and DeMay 1942). Future studies, especially those involving radio-tracking and nest-monitoring, may uncover additional instances of this interspecific nest parasitism.

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